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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,192	04/26/2001	Ravindra K. Shetty	1/1137	9159

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EXAMINER

HOLMES, MICHAEL B

ART UNIT PAPER NUMBER

2121

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/843,192

Applicant(s)

SHETTY, RAVINDRA K.

Examiner

Michael B. Holmes

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____  |



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### Examiner's Detailed Office Action

1. This Office Action is responsive to application **09/843,192**, filed **April 26, 2001**.
2. **Claims 1-43** have been examined.

### Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

*Shinagawa* (USPN 6,363,368 B2) in view of *Itoh et al.* (USPN 6,052,678).

Regarding claim 1: *Shinagawa* discloses a computer readable medium (FIG. 2; C 13, L 40-54) having computer-executable instructions for performing a method for solving a traveling salesman problem. *Shinagawa* does not disclose selecting a set of locations to visit; selecting a starting point and an ending point from the set of locations; applying a search method to the set of locations, the search including a genetic algorithm, the genetic algorithm including an

objective function to simultaneously minimize distance and time; and providing a route as a solution to the traveling salesman problem, the route being from the starting point to the ending point, and visiting all locations in the set of locations, wherein the objective function evaluated the route to a value that is lower than any other path searched. However, *Itoh et al.* discloses selecting a set of locations to visit; (FIG. 2; *Itoh et al.* C 4, L 56-64) selecting a starting point and an ending point from the set of locations; (FIG. 2; *Itoh et al.* C 4, L 56-64) applying a search method to the set of locations, the search including a genetic algorithm, the genetic algorithm including an objective function to simultaneously minimize distance and time; (FIG. 2 & FIG. 3; *Itoh et al.* C 5, L 26-52) and providing a route as a solution to the traveling salesman problem, the route being from the starting point to the ending point, and visiting all locations in the set of locations, wherein the objective function evaluated the route to a value that is lower than any other path searched. (FIG. 2 & FIG. 3; *Itoh et al.* C 5, L 26-52) It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the references because, such mathematical programming problems include traffic control, the determination of an optimum transmission path for a packet especially in a communications network, power supply routing control for an electrical power network, a determination in dispatching freight in traffic system, transportation scheduling problems e.g. for trains, busses and airplanes, a load distribution system amongst parallel operating processors, and the routing control of a coupling network among processors. (*Itoh et al.* C 1, L 16-25)

Regarding claim 2-9 : wherein the genetic algorithm generates populations of size  $2k$ , where the set of locations is of size  $k$ , (*Itoh et al.* C 2, L 25-41; C 6, 25-27)), wherein the genetic algorithm

comprises: a selection operation, a crossover operation, and a mutation operation, wherein the genetic algorithm further comprises: encoding locations into chromosomes, the chromosome having the same number of positions as k, the locations being represented in each position by an integer, wherein the selection operation is CHC selection., wherein the mutation operation comprises swapping two locations at two random positions in a chromosome, (FIG. 4; *Itoh et al. C 6, 25-67*)) wherein the crossover operation has a crossover probability between about 0.6 and 0.9, wherein the mutation operation has a mutation probability between about 0.001 and 0.01, (*Itoh et al. C 14, 42-63*)) wherein the crossover operation is greedy crossover of which “Official Notice” is taken greedy crossover is well know in the art (*Rostoker et al. C 15, L 30-36*)

### Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

**(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.**

6. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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7. Claims 10 & 34 are rejected under 35 U.S.C. 102(e) as being anticipated by *Dueck et al.* (USPN 6,418,398 B1).

Regarding claim 10: *Dueck et al.* discloses a computer readable medium having computer-executable instructions (C 1, L 5-9) for performing a method for finding a route in a supply chain, (C 1, L 5-9) the method comprising: accessing a set of orders; (C 11, L 40-57) selecting a set of supplier locations to visit to pick up products to fill the set of orders; (C 11, L 40-57) searching for pickup paths visiting each supplier location in the set of supplier locations, by applying a genetic algorithm that simultaneously minimizes distance and time; (C 12, L 13-46) and providing a pickup route which comprises a pickup path that best simultaneously minimizes distance and time compared with all the other pickup paths searched. (C 12, L 13-46)

Regarding claim 11-23 & 35-38 of which add no novelty to applicant's claimed invention, and therefore is rejected under the same rational as the independent claims.

## Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 24 is rejected under 35 U.S.C. 102(b) as being anticipated by *Itoh et al.* (USPN 6,052,678).

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Regarding claim 24: *Itoh et al.* teaches a method of searching among locations for paths, (Fig. 2; Abstract) comprising: randomly generating an initial population of chromosomes to be a current population, each chromosome holding a predetermined number of integers with one integer at each position in the chromosome, each integer representing one location from a set of locations; (C 1, L 55 to C 2, L 8) calculating a fitness for each chromosome in the current population, the fitness representing distance and time simultaneously; (C 2, L 9-17) selecting one or more pairs of parent chromosomes from the current population based on their fitness to generate a new populations crossing over the pairs at a randomly chosen point, with crossover probability  $p$ , between about 0.6 and 0.9, to form offspring to generate the new population; (C 14, L 42-62) mutating the offspring at each position on their chromosomes, with mutation probability  $p_n$ , between about 0.001 and 0.01, to modify the new population; making the current population a previous population and replacing the current population with the new population; forming new generations by repeating the calculating, selecting, crossing over, mutating, and making acts, until a previous best fitness in the previous population is the same as a current best fitness in the current population; and to providing a path represented by a chromosome having a best fitness in the current population. (C 14, L 42-62)

Regarding claim 25-33 of which add no novelty to applicant's claimed invention, and therefore is rejected under the same rational as the independent claims.

## Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

**(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.**

11. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 39-43 are rejected under 35 U.S.C. 102(e) as being anticipated by *Dueck et al.* (USPN 6,418,398 B1).

Regarding claim 39: A data signal having a data structure stored thereon, comprising: a first field containing locations; and a second field containing a request for a route through the locations in the first field. (C 6, L 1-12) Regarding claim 40: A data signal having a data structure stored thereon, comprising: a field containing a route which comprises ordered locations to be visited. (C 6, L 1-12) Regarding claim 41: The data signal as recited in claim 40 wherein the route is a delivery route. (Abstract; C 1, L 6-10) Regarding claim 42: The data signal as recited in claim 40 wherein the route is a pickup route. (Abstract; C 1, L 6-10) Regarding claim 43: A method of



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communication, comprising: receiving a plurality of locations and a request for a route through the locations; and sending, in response to the request, the route. (Abstract; C 1, L 6-10)

## Conclusion

13. The prior art made of record and (listed of form **PTO-892**) not relied upon is considered pertinent to applicant's disclosure as follows. Applicant or applicant's representative is respectfully reminded that in process of patent prosecution i.e., amending of claims in response to a rejection of claims set forth by the Examiner per Title 35 U.S.C. The patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and any objections made. Moreover, applicant or applicant's representative must clearly show how the amendments avoid or overcome such references and objections. *See 37 CFR § 1.111(c).*

## Correspondence Information

14. Any inquiries concerning this communication or earlier communications from the examiner should be directed to **Michael B. Holmes** who may be reached via telephone at **(703) 308-6280**. The examiner can normally be reached Monday through Friday between 8:00 a.m. and 5:00 p.m. eastern standard time.

If you need to send the Examiner, a facsimile transmission regarding After Final issues, please send it to **(703) 746-7238**. If you need to send an Official facsimile transmission, please send it to **(703) 746-7239**. If you would like to send a Non-Official (draft)

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facsimile transmission the fax is (703) 746-7240. If any attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Anthony Knight, may be reached at (703) 308-3179.

Any response to this office action should be mailed too:

**Director of Patents and Trademarks Washington, D.C. 20231.** Hand-delivered responses should be delivered to the Receptionist, located on the fourth floor of **Crystal Park II, 2121 Crystal Drive Arlington, Virginia.**

***Michael B. Holmes***

Patent Examiner

Artificial Intelligence

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United States Department of Commerce

Patent & Trademark Office

*Ramesh Patel*  
RAMESH PATEL  
PRIMARY EXAMINER 8/7/04  
*For Anthony Knight*